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FAUNISTIC NOTE

First record of *Thaumastocoris peregrinus* (Hemiptera, Thaumastocoridae) in Cyprus

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Abstract

Thaumastocoris peregrinus Carpintero and Dellapé, 2006, originally from Australia, has become a cosmopolitan alien species associated with *Eucalyptus* spp. (Myrtaceae). In this study, the species is recorded for the first time in Cyprus from the Limassol district and the Akrotiri UK Sovereign Base Area. The adverse socioeconomic impacts of the species on the island are briefly discussed.

Keywords

alien species, biological invasions, bronze bug, *Eucalyptus*, Mediterranean, plantations.

Thaumastocoris peregrinus Carpintero and Dellapé, 2006 originates from Australia, most likely from the New South Wales region (Mutitu et al. 2020). In the last few decades, this species has expanded its range to Africa (Kenya, Malawi, Mozambique, South Africa, Tanzania, Zimbabwe), the Americas (Argentina, Brazil, Chile, Mexico, Paraguay, Uruguay, USA), Europe (Albania, Greece, Italy, Malta, Spain, Portugal), Israel, and New Zealand (Carpintero and Dellapé 2006; Laudonia and Sasso 2012; Garcia et al. 2013; Vivas et al. 2015; Novoselsky and Freidberg 2016; van der Heyden 2017; Petrakis 2018; Mifsud and Carapezza 2020; van der Heyden 2021). Although *Th. peregrinus* is likely harmless to the native flora and fauna, it may seriously harm

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Eucalyptus plantations, which represent a significant source of income for many of the abovementioned countries (Hurley et al. 2016). Besides commercially important plantations, ornamental *Eucalyptus* may also suffer considerable disfigurement by the effects of this species (e.g. leaf discoloration), which may even lead to the death of saplings (Soliman et al. 2012).

Eucalyptus trees were first introduced to Cyprus during the 1880s' and planted as "a sanitary measure" against the malaria epidemic, afforestation, but also as ornamental foliage in city centers (Wild 1879; Harris 2007; Pescott et al. 2018). Since then, they have been widely planted as ornamentals in urban areas decorating town squares, parks and gardens. In semi-urban and agricultural land, they serve as windbreak rows and roadside greenery, even reaching natural habitats and protected areas such as the Akrotiri Peninsula (Pescott et al. 2018). The extensive use of *Eucalyptus* spp. in the island has facilitated the introduction and establishment of numerous alien species, such as *Thrips australis* (Bagnall, 1915) (Georghiou 1977), *Glycaspis brimblecombei* Moore, 1964 (Karaca et al. 2017), as well as *Phoracantha recurva* Newman, 1840 and *Phoracantha semipunctata* (Fabricius, 1775) (Alziar and Lemaire 2008). Overall, a total of 21 alien insects have been collected from eucalypts on the island (Demetriou 2021; Demetriou et al. 2021; Demetriou et al. 2022a, b, c).

In the present work, we report on the first records of *Th. peregrinus* from several locations in Cyprus, thereby confirming it as a new alien species for the country.

Specimen Collection

The first sample of *Th. peregrinus* in Cyprus was collected in December 2020 under *Eucalyptus* bark by Ch. Makris. Subsequent sampling was undertaken by J. Demetriou from February to June 2021 in Limassol city and the Akrotiri UK Sovereign Base Area. Specimens were collected by beating *Eucalyptus* spp. branches in urban locations in Cyprus.

Photography

The habitus image of the specimen was taken using a CANON EOS 5D mark II + Canon MP-E 65mm f/2.8 1–5× Macro Photo Lens + Canon Macro twin lite mt-24eX and a focus stacking technique using stackshot macro rail Package and Zerene stacker.

Maps

The distribution map was created using QGIS free and open source Geographic Information System (https://qgis.org/en/site/).

Material examined

CYPRUS:
1♂; Limassol (Lemessos), Germasogeia; 34.7359°N; 33.0854°E; alt. 45 m; 28 July 2020; Ch. Makris leg., L.-R. Davranoglou det.; under Eucalyptus bark (Fig. 1);

Figure 1. Habitus image of a male *Thaumastocoris peregrinus* collected from Germasogeia, Limassol, Cyprus, in dorsal view. Photograph by: Christodoulos Makris.

1♀; Marina (Molos), urban area - municipal park by the sea; 34.6750°N; 33.0475°E; alt. 0 m; 31 March 2021; J. Demetriou leg., L.-R. Davranoglou det.; beat-sheet sampling on ornamental *Eucalyptus* spp.;
1♂, 1 larva; Marina (Molos), urban area - municipal park by the sea; 34.6750°N; 33.0475°E; alt. 0 m; 5 April 2021; J. Demetriou leg., L.-R. Davranoglou det.; beat-sheet sampling on ornamental *Eucalyptus* spp.;
1♂; Marina (Molos), urban area - municipal park by the sea; 34.6750°N; 33.0475°E; alt. 0 m; 7 May 2021; J. Demetriou leg., L.-R. Davranoglou det.; beat-sheet sampling on ornamental *Eucalyptus* spp.;
1 larva; Marina (Molos), urban area - municipal park by the sea; 34.6750°N; 33.0475°E; alt. 0 m; 14 May 2021; J. Demetriou leg., L.-R. Davranoglou det.; beat-sheet sampling on ornamental *Eucalyptus* spp.

Akrotiri UK Sovereign Base Area
1♂; Akrotiri village, urban park of Timios Stavros church; 34.6025°N; 32.9544°E; alt. 10 m; 23 April 2021; J. Demetriou leg., L.-R. Davranoglou det.; beat-sheet sampling on ornamental *Eucalyptus* spp.;
1♀; Akrotiri village, urban park of Timios Stavros church; 34.6025°N; 32.9544°E; alt. 10 m; 7 May 2021; J. Demetriou leg., L.-R. Davranoglou det.; beat-sheet sampling on ornamental *Eucalyptus* spp.;

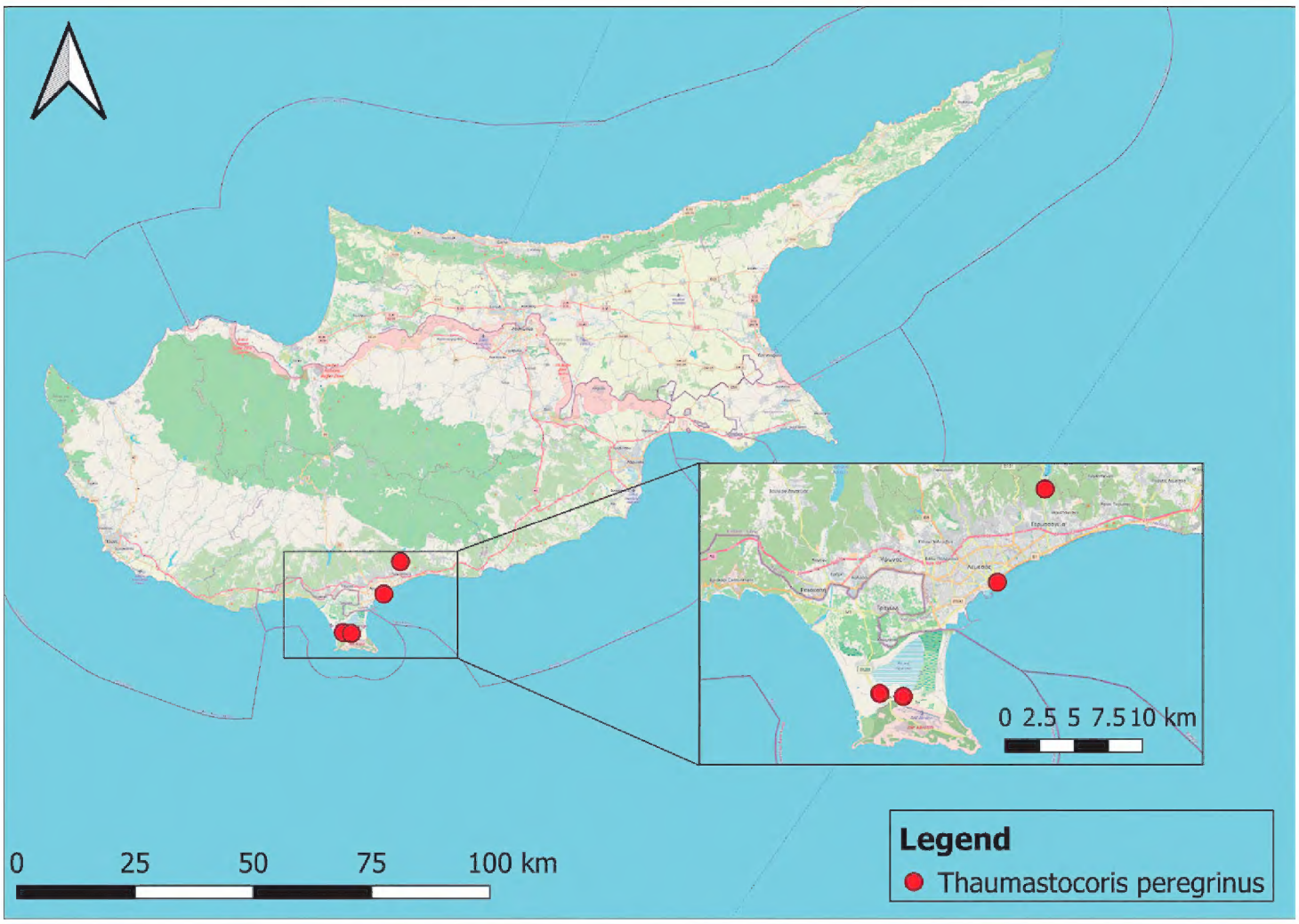

Figure 2. Localities in Cyprus where *Thaumastocoris peregrinus* was collected.

1♀; Akrotiri salt lake, cultivated land by the salt-lake; 34.6005°N; 32.9730°E; alt. 5 m; 14 May 2021; J. Demetriou leg., L.-R. Davranoglou det.; collected during beat-sheet sampling from *Eucalyptus* spp. (Fig. 2).

Specimens will be deposited at the Section of Ecology and Systematics (Department of Biology, National and Kapodistrian University of Athens, Greece) as well as the Joint Services Health Unit Cyprus, (Akrotiri, Cyprus) as part of the first author's MSc Thesis.

The specimens we examined fit all the morphological characteristics of *Th. peregrinus* (Fig. 1) (Carpintero and Dellapé 2006), which leaves no doubt regarding the identity of the species. Given that Cyprus does not profit financially from *Eucalyptus* spp. plantations, the economic impact of *Th. peregrinus* should be negligible in this country. However, reduced fitness of ornamental *Eucalyptus* spp. throughout the synergistic effects of other observed alien species (e.g. *G. brimblecombei*), not only harms the aesthetics of the urban landscape, but could also increase municipal costs for pesticides, trimming or cutting down infested trees (Kueffer and Kull 2017; Demetriou 2021).

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